

# Online Tsunami Education Worksheet

This activity involves logging on to a California state government website  
And learning about where tsunamis can occur in California.

## Part 1: Tsunami Basics

Log onto

<http://conservation.ca.gov/cgs>

This is the California Geological Survey's (CGS) website.

Click on "Geologic Hazards" (the brown tab near the top of the page).

On the green bar that appears below, click on "Tsunamis" (the tab on the far right).



This is the "CGS Tsunami Web Site."

Scroll down to the bottom of the page and click on **\*\*New\*\*CGS Note – Tsunamis**

The page that comes up should read "TUSNAMIS Note 55" across the top.

Read the first paragraph titled "What is a tsunami?"

What is one way a tsunami can be generated?

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What is one difference between a tsunami and a normal wave that breaks on the beach?

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Read the next two sections titled "Tsunami Warning Signs" and "Tsunami Hero."

What should you do if you are at the beach and feel strong shaking from an earthquake?

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What did Tilly Smith see that warned her that a tsunami was coming?

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Scroll down to the top of page 2. Read the section titled "Tsunami Hazards in California."

Tsunamis can be caused by either local or distant earthquakes.

Of the five tsunamis that are described, circle the year of the one that you think was the worst and explain why on the space below:

1700    1812    1946    1964    2006

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Close the "TSUNAMIS Note 55" page, and return to the top of the "CGS Tsunami Web Site" page.

## **Part 2: Tsunami Inundation Map Exercise**

At the top of the “CGS Tsunami Web Site” page, click on **\*\*NEW\*\* Statewide Tsunami Inundation Maps**. You will see a map of California on the left and a list of counties on the right.

Think of a place along the California coast that you and your family have visited or would like to visit.

Click on the county name for that area (for example, Seal Beach is in Orange County). Or, you can also click directly on the county on the California map.

A rectangle shaped map that covers the county you have picked appears. On the map are squares that outline of all the USGS quadrangle maps that cover this region. The yellow squares with blue diagonal lines represent the maps that can be affected by tsunamis.



Click on the area of the map you are interested in, or you can go to the list titled “Download Maps by Quadrangle Name” (below or next to the map), and click on the map that lists the city you are interested in.

The name of the area you are interested in is \_\_\_\_\_

The Tsunami Inundation Map that includes the area you picked will appear. Scroll down the map until you can read the “MAP EXPLANATION” (it will be on the lower right).

The inundation area is the area on the map that can be affected by a tsunami. The red tsunami inundation line shows how far inland tsunami flooding can occur. On the map it represents the highest elevation the water can reach.

What color is the tsunami inundation area on the map?

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The edge of the coastline represents sea-level. Sea-level has an elevation of zero feet.

Would you expect the red tsunami inundation line to be above or below sea-level?

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Some of the gray lines on the map are contour lines.

These lines represent where the elevation is the same. For example, if you walk along a 20-foot contour line, you will not go up or down hill; you will stay at the same elevation.

When scientists calculate the expected size of a tsunami along the California coastline, many things are taken into account: the cause of the tsunami, how far the wave travels from its source, the shape of the coastline, and the shape of the sea floor near the coast. Scientists use the contour lines on topographic maps to plot where the inundation line will go.

For an area that scientists expect a 15-foot tsunami, the inundation line would be drawn at an elevation of 15 feet. This would mean that everything from the beach to an area 15 feet higher than the beach would be covered by the tsunami.

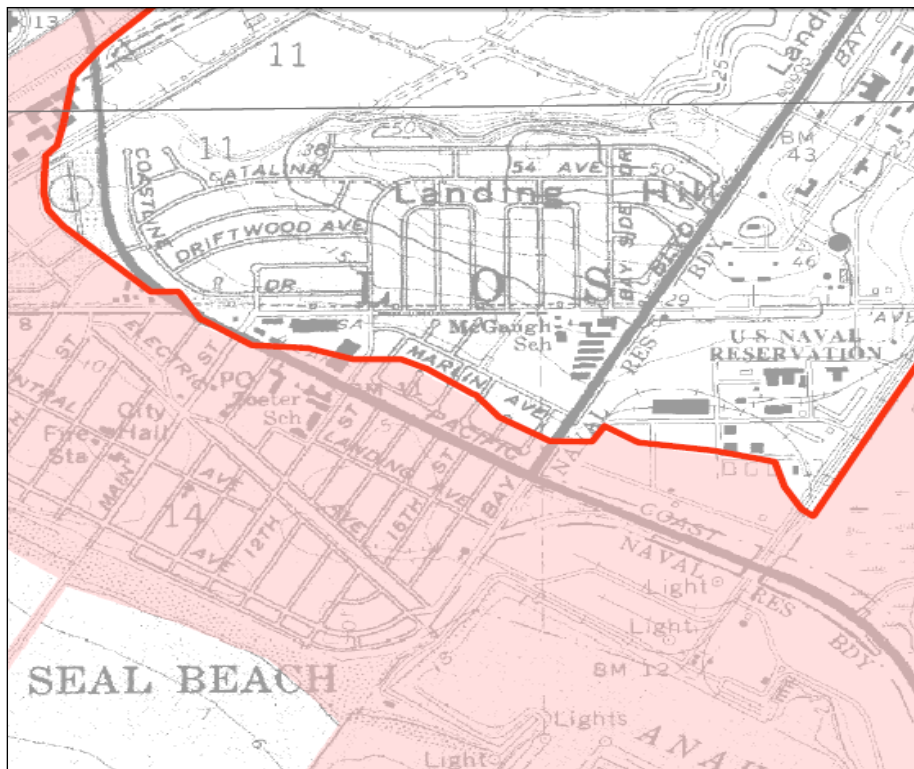
Use the “go back” arrow to return to the index map for the county. Scroll down to the bottom of the page where you will find additional links on what to do during a tsunami, like county-specific evacuation plans that can help you better prepare!

### Part 3: Tsunami Inundation and Map Topography/Elevations

Look at the figure below. It is part of the tsunami inundation map for Seal Beach in Orange County. The streets and topographic contour lines are from the USGS map.

Find Zoeter School on the map. (Note “School” is abbreviated as “Sch”).  
Find McGaugh School.

Which school is inside the tsunami inundation area? \_\_\_\_\_



Zoeter School has an elevation of 13 ft.  
McGaugh School has an elevation of 22 feet.

If you walked from Zoeter to McGaugh School, would you be walking uphill or downhill?  
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**If there was a tsunami warning, what do you think the people at Zoeter School should do?**

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**If your family was playing near the water at Seal Beach, and there was a tsunami warning issued by the life guards, police or firemen, what should you do?**

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**Some of the posted tsunami signs in California look like those below. The next time you visit a coastal area look for blue and white signs similar to these:**

